

REMARKS

Reconsideration of the above-identified patent application in view of the amendments above and the remarks following is respectfully requested.

Claims 1-49 are in this case. Claims 38-49 were withdrawn by the Examiner from consideration as drawn to a non-elected invention. Claims 1-37 have been rejected under § 102(b). Dependent claim 24 has been amended.

The claims before the Examiner are directed toward adapters for managing transport service instances, such as queue pairs, that send data packets from a host to a network and receive data packets for the host from the network, and methods of their use. A host interface gets context information about the service instances from a system memory of a host processor. Packet processing circuitry processes data packets that are sent to the network and that are received from the network via a network/fabric interface, according to the context information. Context information that is used frequently by the processing circuitry is kept in a cache.

§ 102(b) Rejections – Dobbins et al. ‘123

The Examiner has rejected claims 1-37 under § 102(b) as being anticipated by Dobbins et al., US Patent No. 5,509,123 (henceforth, “Dobbins et al. ‘123”). The Examiner’s rejection is respectfully traversed.

Dobbins et al. ‘123 teach an object-oriented architecture for a network router. According to the OSI model, a network router works in layer 3, the “network layer”. Architecture **200** of routers **105**, **106**, **107** and **108** includes a forwarding engine **203** that in turn includes forwarding engine objects such as host forwarding engine object **232** and protocol forwarding engine object **234**. Because deciding how to forward a packet along the network is computationally intensive, forwarding engine **203** uses a

cache to save forwarding strategies for subsequent packets that share the same source and destination addresses as the packets for which the forwarding strategies were computed. The forwarding strategies are indexed according to destination addresses (column 7 line 62).

By contrast, the present invention is directed at caching, in the network adapter recited in independent claim 1 and in the first step of independent claim 17, not forwarding strategies for data packets, but context information about transport service instances that send and receive the data packets. Such a network adapter works, not in layer 3 of the OSI model, but in layer 4, to provide reliable data packet delivery service across an unreliable network of which the OSI layer 3 network routers are part. Therefore, Dobbins et al. '123 has nothing at all to do with the present invention. The context information of the present invention includes information such as that listed on page 3 lines 17-20 (destination address, negotiated operating limits, service level and keys for access control) and in Table I on pages 24-25, but not information about how to route the data packets to their ultimate destination address (although, as noted in column 9 lines 40-42 of Dobbins et al. '123, some of this information may be relevant as input to the computation of the forwarding strategies that Dobbins et al. '123 do cache). Therefore, the present invention, as recited in independent claims 1, 17, 33 and 37, is not anticipated by Dobbins et al. '123. Furthermore, the present invention, as recited in independent claims 1, 17, 33 and 37, is not even obvious from Dobbins et al. '123. There is neither a hint nor a suggestion in Dobbins et al. '123 of caching information other than forwarding strategies.

With independent claims 1, 17 and 33 allowable in their present form, it follows that claims 2-16, 18-32 and 34-36, that depend therefrom, also are allowable.

Although claims 2-16, 18-32 and 34-36 are allowable merely by virtue of depending from claims 1, 17 and 33, there are additional reasons why some of these claims are allowable over Dobbins et al. '123.

Turning first to Dobbins et al. '123 column 7 line 54 through column 8 line 14, it is clear from this citation that the forwarding engine of Dobbins et al. '123 uses a cache only for data packets that are destined for further transmission on the network, and not for data packets destined for the host with which the forwarding engine is associated. Note in particular column 8 lines 12-14:

Alternatively, if a local delivery into the host CPU is required, the host FAS object **18** is called and the packet is transmitted out on the host interface **17**. (emphasis added)

By contrast, the cached context information of the present invention is used both for sending data packets from the host out to the network and receiving data packets for the host from the network. This aspect of the present invention is recited in claims 12 and 28 ("send cache" and "receive cache"), 13 (both the "outgoing packet generator" and the "incoming packet processor" "access the same context information in the cache memory"), 29 ("generating...packets for delivery to remote entities via the network" and "processing...packets received...via the network", "using the same context information in the cache memory"), and 34 (both the "execution unit adapted to generate...packets for delivery...via the network" and the "transport check unit coupled to process...packets received...via the network" are "coupled to access the same context information in the cache memory").

Turning now to how Dobbins et al. '123 index their cache, as described in column 7 line 62, the index of the information in the cache for a data packet is the destination address of the data packet. By contrast, the indices of the present invention, as recited in claims 2 and 18, are portions of the service instance numbers.

Turning now to the direction of data flow with respect to the cache, in Dobbins et al. '123, this data flow is only into the cache. The Examiner cited Dobbins et al. '123 column 7 line 67 as anticipating claim 10, which recites fields in the cache memory that are “updated by the packet processing circuitry” and then “copied back to the context information in the system memory”, *i.e.*, data flow from the cache back to the host. The full citation fro Dobbins et al. '123 is column 7 lines 64-67:

...if the destination network address is not located in cache memory, accessing a forward look-up table **20** for the best route to the destination network address, and then updating its cache. (emphasis added)

The cache in question clearly is the cache of the forwarding engine, so that the data flow is from the host to the cache.

Amendments to the Claims

Inadvertent typographical errors in claim 24 have been corrected.

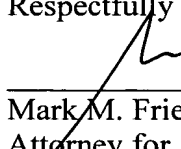
Amendments to the Specification

The specification refers to four pending US patent application. References to the publication numbers of these patent applications have been added to the specification.

No new matter has been added.

In view of the above amendments and remarks it is respectfully submitted that independent claims 1, 17, 33 and 37, and hence dependent claims 2-16, 18-32 and 34-36 are in condition for allowance. Prompt notice of allowance is respectfully and earnestly solicited.

Respectfully submitted,



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